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PRE AND POST HSCT EVALUATION INDICATES REDUCTION OF PHYSICAL AND FUNCTIONAL PERFORMANCE DUE TO TRANSPLANT

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Introduction: Before, during and after hematopoietic stem cell transplantation (HSCT) patients (pts) go throw significant physical, psychological and psychosocial stress. This prospective study evaluated physical and functional performance of pts pre and post HSCT using a functional assessment.

Pts and Methods: From November 2008 to September 2010, 50 pts, median age 48 (18-67), 29 (58%) female, were enrolled in the study. Data collection was performed pre and post autologous or allogeneic HSCT. The instruments were 2 minutes walking test (2MWT), oxygen saturation (Sa02), heart rate (HR) and Borg Scale (BS) before and after 2MWT for gate performance evaluation; Grip Strength (GS) for hand strength evaluation, Schober Test (ST) for spine mobility testing and maximum and adapted activity score (MAS and AAS) of Human Activity Profile (HAP) questionnaire for function role evaluation.

Results: 50 pts with hematological malignancies were evaluated pre HSCT; 8 did not undergo HSCT; 3 died, 2 refused, 2 are in line and 1 was excluded. 42 out of 50 (84%) underwent HSCT, 21 allogeneic and 21 autologous. 29 out of 42 (69%) pts performed both evaluations; 13 pts did not perform both evaluations: 11 died prematurely and 2 did not discharge until last analysis. Among groups who performed both evaluations, we found significant lower values in the 2^{nd} evaluation: 2MWT ($p = 0.007$), GS for right and left hand ($p = 0.004$ and 0.007), ST ($p < 0.0001$), MAS and AAS ($p < 0.0001$); and higher values in HR ($p = 0.02$). Significant statistical differences indicate decrease on aerobic conditioning at baseline and after physical stress, decline of function and gate performance, reduction of muscle strength and spine flexibility and diminishing on function role on daily activities post HSCT.

Conclusion: Our results suggest there were significant physical losses in this population and that its intensity and specificity may guide preventive measures and conduct a better rehabilitation program on post HSCT period.

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EXECUTIVE FUNCTIONING IN PEDIATRIC STEM CELL TRANSPLANTATION UTILIZING FMRI

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Advances in the treatment of children undergoing stem cell transplants (SCT) has led to greater rates of survival and a need for greater understanding of cognitive late effects associated with that treatment. The general clinical impression has been that heavily treated leukemia patients who come to transplant with the burden of intrathecal chemotherapy to go under total body irradiation (TBI), with or without cranial boost, in their preparative regimen may be at a high risk of changes in their neuro-cognitive function post transplant. This brief case-control investigation tested 18 children before puberty. Eight post allogeneic bone marrow transplant recipients (mean age10.79 years), who had received their transplant for leukemia between 1995 and 2007, comprised the SCT group (See Table 1 for SCT group demographics). Ten typically developing children (mean age11.00 years) comprised the control group of siblings (regardless of age and gender) of the target group, to match as close as possible factors such as environmental stimulation and genetic role in intelligence and performance. All subjects were administered the Wechsler Intelligence Scale for Children, 4th Edition and the Wisconsin Card Sorting Task as part of a comprehensive neurocognitive battery. Functional imaging was acquired for all subjects. A behavioral task, NoGo/Go to employed to assess inhibitory functioning. Results indicated no significant differences between the SCT and control groups on performance of the NoGo/Go task. Specifically, there were no significant differences in accuracy in Nogo/Go Hits ($p = 0.99$), Nogo/Go D-prime ($p = 0.96$), or Go-only Hits ($p = 0.13$). There were also no significant differences between the groups with regard to response times in the Nogo/Go ($p = 0.50$) or Go-only conditions ($p = 0.24$). These findings indicate that the networks that subserve executive functioning abilities, particularly inhibitory control, are similar for children who undergo SCT, despite of their treatments, and typically developing children. While the sample size of this study is small and limits generalizability, this study results were different than what was expected and substantiates the utility of imaging technology to better understand the long term cognitive functioning of patients who undergo SCT.

Gender	Diagnosis	aGVHD	cGVHD
Female: 4	ALL: 7	Yes: 4	Yes: 1
Male: 4	AML: 1	No: 4	No: 7
TBI with preparative regimen for Tx.	**Cranial radiation boost with Tx.**	**Allogenic graft**	**Product**
Yes: 8	Yes: 2	Full sibling match: 5	Bone marrow: 8
No: 0	No: 6	Unrelated: 3	Other: 0
Pre Tx. Intrathecal Chemotherapy			
Yes: 8			
No:0			

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BRONCHIOLITIS OBLITERANS SYNDROME AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION: ANALYSIS OF SINGLE CENTER EXPERIENCE

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Background: Bronchiolitis obliterans (BOS) after allogeneic stem cell transplantation (allo-SCT) is a late-onset, life-threatening respiratory complication that reduces patients' quality of life. Although some risk factors of BOS have been reported, most previous studies were reported before 2000. Here, we retrospectively analyzed the incidence of, and risk factors, for BOS among patients before 2010 to determine whether a recent transplant procedure (e.g., cord blood or non-myeloablative transplant) affects the incidence of BOS.

Patients and Methods: Between May 1995 and June 2010, 253 patients underwent allo-SCT for hematological malignancies at Okayama University Hospital, and 162 who survived at least 100 days after allo-SCT (R-PBSCT, 70; UR-BMT, 57; and CBT, 35) were evaluated in this study. Clinical diagnosis of BOS was determined using pulmonary function tests and typical changes on high-resolution computed tomography.

Results: The incidence of BOS was 5.5% (n = 9). The median age of BOS patients was 41 years (range, 24-46) and the patient group comprised eight females and one male. The graft source was UR-BM in one and R-PBSC in eight patients. No BOS was observed among CBT recipients. Eight of nine BOS patients received a myeloablative regimen and one BOS patient received a Flu-based non-myeloablative regimen. The median onset of BOS was 10 months (range, 3-45) after transplant. Dry cough was the most common first symptom of BOS. Four of nine BOS patients are still alive and the median survival after BOS was 32 months (range, 4-96). Univariate analysis revealed that R-PBSCT, female gender, young age (< 50 years), myeloablative conditioning regimen, and extensive chronic GVHD are risk factors for BOS.

Conclusions: Our results showed that the incidence of BOS in non-myeloablative transplants was lower than in myeloablative transplants. Although no BOS was observed among CBT recipients, the difference was not significant compared with another graft source.

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OPTIMAL DURATION AND FREQUENCY OF IN-HOSPITAL LAY CARE-PARTNER SUPPORT FOR POSITIVE IMPACT ON PATIENT SURVIVAL IN ALLOGENEIC BMT

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